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10/620,302	07/14/2003	Wayne D. Grover	LAMA121485	7562

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EXAMINER	
VIANA DI PRISCO, GERMAN	
ART UNIT	**PAPER NUMBER**
2619	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/620,302	GROVER ET AL.	
	Examiner	Art Unit	
	German Viana Di Prisco	2619	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 August 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-28* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-8,10-22 and 24-28* is/are rejected.

7)☒ Claim(s) *9 and 23* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *08/16/2007* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. The drawings were received on 08/16/2007. These drawings are accepted.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation

under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 1-3 and 15-17 rejected under 35 U.S.C. 103(a) as being unpatentable over Ellinas et al. (United States Patent No.: 6,760,302 B1).

Consider claims 1 and 15, Ellinas et al. clearly show and disclose a telecommunications network and method, comprising: plural nodes connected by plural spans and arranged to form a mesh network (nodes 301, 303, 305, 307, 309, 311, 313, 315, 319, and 321 in figure 3 and column 8, lines 27-30); at least one pre-configured (pre-determined) cycle of spare capacity being established in the mesh network, the pre-configured cycle including plural nodes of the mesh network (protection cycles 323, 325, 327, 3229, and 331 in figure 3 and column 8, lines 30-32) and being pre-configured prior to any span or node failure (protection cycles are pre-determined prior to the activation of the network, column 7, lines 59-62); and the plural nodes of the pre-configured cycle (protection cycle 331 in figure 3) being configured to protect at least one path segment (segment 317-311-309), where the path segment includes at least two intersecting nodes(nodes 317 and 309) within the pre-configured cycle (331 in figure 3) and at least one intermediate node (311) in a path that includes the two intersecting nodes(317 and 309) and straddles the pre-configured cycle, the intermediate node not being a part of the pre-configured cycle (node 311 is not on protection cycle 331 in figure 3) providing two restoration paths to protect against a

failure of a span straddling the pre-configured cycle (if straddling path 333 fails, node 309 can communicate with node 311 along protection path 331 and through node 317 or along protection path 331 and through node 313).

However Ellinas et al do not specifically disclose that the failure of a span on the pre-configured cycle provides one restoration path.

Even though Ellinas et al do not specifically disclose a protection cycle going in the opposite direction of protection cycle 331 and therefore not including the intermediate node 311, official notice is taken that it would be obvious to a person of ordinary skill in the art to do so in order to provide an alternate path in case of failure.

Consider claims 2 and 16, and applied to claims 1 and 15 respectively above, Ellinas et al clearly show a mesh network in which the path segments are segments of a working path with a start node not connected to the pre-configured cycle (segment starting at node 321 in figure 3).

Consider claims 3 and 17 , and applied to claims 1 and 15 respectively above, Ellinas et al clearly show a mesh network in which the path segments are segments of a working path with a start node not connected to the pre-configured cycle (segment ending at node 303 in figure 3).

6. Claims 4-7, 10, 18-21, and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ellinas et al. (United States Patent No.: 6,760,302 B1) in view of Grover et al. (United States patent Application Publication No.: US 2002/0181393 A1).

One of the applied references has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). This rejection might also be overcome by showing that the reference is disqualified under 35 U.S.C. 103(c) as prior art in a rejection under 35 U.S.C. 103(a). See MPEP § 706.02(l)(1) and § 706.02(l)(2).

Consider claim 4, and as applied to claim 1 above, Ellinas et al. clearly disclose a telecommunications network in which redundant protection fibers are pre-configured to form protection cycles used to protect the network against link or node failures by modeling the network (identifying all working flows in the mesh network to be restored), (column 8 lines 16-20).

However Ellinas et al. do not specifically disclose identifying the spare capacity of the pre-configured cycle to restore all working flows for all spans subject to failure in all path segments; and providing spare capacity along the pre-configured cycle sufficient to restore all working flows.

In the same field of endeavor Grover et al. show and disclose a mesh telecommunications network wherein traffic restoration routes are provided by determining the working capacity and corresponding spare capacity, and adapting the network to provide the required spare capacity (figures 1 and 2, abstract, paragraphs [0010]-[0030]).

Therefore it would have been obvious to a person of ordinary skill in the art a the time the invention was made to determine the working capacity and adapting the network to provide the required spare capacity as disclosed by Grover et al. in the telecommunications network of Ellinas et al. in order to provide efficient path protection in a mesh network.

Consider claim 5, and as applied to claim 1 above, Ellinas et al. clearly disclose a telecommunications network in which redundant protection fibers are pre-configured to form protection cycles used to protect the network against link or node failures.

However, Ellinas et al. do not disclose establishing a pre-configured cycle comprising the steps of pre-selecting a set of candidate cycles for forming into pre-configured cycles; allocating working paths and spare capacity in the mesh network based on the set of candidate cycles; and providing the mesh network with spare

capacity arranged in pre-configured cycles according to the allocation determined in the preceding step.

In the same field of endeavor Grover et al. show and disclose a mesh telecommunications network wherein a set of eligible restoration routes is generated, the corresponding spare capacity is determined, and the network is adapted to provide the required spare capacity for the selected restoration routes (figures 1 and 2, abstract, paragraphs [0010]-[0030]).

Therefore it would have been obvious to a person of ordinary skill in the art a the time the invention was made to generate a set of eligible restoration routes, determine the corresponding spare capacity, and adapt the network to provide the required spare capacity for the selected restoration routes as disclosed by Grover et al. in the telecommunications network of Ellinas et al. in order to provide efficient path protection in a mesh network.

Consider claim 6, and as applied to claim 5 above, Ellinas et al. clearly disclose a telecommunications network in which redundant protection fibers are pre-configured to form protection cycles used to protect the network against link or node failures.

However, Ellinas et al. do not specifically disclose that the allocation of working paths and spare capacity is jointly optimized.

In the same field of endeavor, Grover et al. clearly show and disclose establishing a bi-criteria (route and capacity) objective function for the selection of a set of restoration routes (figure 2 and paragraphs [0046]-[0049]).

Therefore it would have been obvious to a person of ordinary skill in the art a the time the invention was made to jointly optimize the allocation of working paths and spare capacity as disclosed by Grover et al. in the telecommunications network of Ellinas et al. in order to provide efficient path protection in a mesh network.

Consider claim 7, and as applied to claim 5 above, Ellinas et al. clearly disclose a telecommunications network in which redundant protection fibers are pre-configured to form protection cycles used to protect the network against link or node failures.

However, Ellinas et al. do not specifically disclose pre-selecting candidate cycles by ranking a set of closed paths in the mesh network according to the degree to which each closed path protects spans on and off the closed path, and selecting candidate cycles from the set of closed paths.

In the same field of endeavor, Grover et al. disclose ranking and selecting restoration routes from a larger set of candidates (paragraphs [0046]-[0057], table 3).

Therefore it would have been obvious to a person of ordinary skill in the art a the time the invention was made to select protection cycles from a set of large candidates by ranking said protection cycles as disclosed by Grover et al. in the telecommunications network of Ellinas et al. in order to provide efficient path protection in a mesh network.

Consider claim 10, and as applied to claim 5 above, Ellinas et al., as modified by Grover et al. disclose a telecommunications network in which redundant protection fibers are pre-configured to form protection cycles used to protect the network against

link or node failures wherein other conventional methods of determining the directed cycles may also be used (column 12 lines 24-26).

Therefore it would have been obvious, to a person of ordinary skill in the art at the time the invention was made to use other conventional methods including a mixed selection strategy to pre-select protection cycles in the telecommunications network of Ellinas et al., as modified by Grover et al. for the purpose of optimizing the path protection in the network.

Consider claim 18, and as applied to claim 15 above, Ellinas et al. clearly disclose a method of operating a telecommunications network in which redundant protection fibers are pre-configured to form protection cycles used to protect the network against link or node failures by modeling the network (identifying all working flows in the mesh network to be restored), (column 8 lines 16-20).

However Ellinas et al. do not specifically disclose identifying the spare capacity of the pre-configured cycle to restore all working flows for all spans subject to failure in all path segments; and providing spare capacity along the pre-configured cycle sufficient to restore all working flows.

In the same field of endeavor Grover et al. show and disclose a mesh telecommunications network wherein traffic restoration routes are provided by determining the working capacity and corresponding spare capacity, and adapting the network to provide the required spare capacity (figures 1 and 2, abstract, paragraphs [0010]-[0030]).

Therefore it would have been obvious to a person of ordinary skill in the art a the time the invention was made to determine the working capacity and adapting the network to provide the required spare capacity as disclosed by Grover et al. in the method of operating telecommunications network of Ellinas et al. in order to provide efficient path protection in a mesh network.

Consider claim 19, and as applied to claim 15 above, Ellinas et al. clearly disclose a method of operating a telecommunications network in which redundant protection fibers are pre-configured to form protection cycles used to protect the network against link or node failures.

However, Ellinas et al. do not disclose establishing a pre-configured cycle comprising the steps of pre-selecting a set of candidate cycles for forming into pre-configured cycles; allocating working paths and spare capacity in the mesh network based on the set of candidate cycles; and providing the mesh network with spare capacity arranged in pre-configured cycles according to the allocation determined in the preceding step.

In the same field of endeavor Grover et al. show and disclose a mesh telecommunications network wherein a set of eligible restoration routes is generated, the corresponding spare capacity is determined, and the network is adapted to provide the required spare capacity for the selected restoration routes (figures 1 and 2, abstract, paragraphs [0010]-[0030]).

Therefore it would have been obvious to a person of ordinary skill in the art a the time the invention was made to generate a set of eligible restoration routes, determine the corresponding spare capacity, and adapt the network to provide the required spare capacity for the selected restoration routes as disclosed by Grover et al. in the method of operating telecommunications network of Ellinas et al. in order to provide efficient path protection in a mesh network.

Consider claim 20, and as applied to claim 19 above, Ellinas et al. clearly disclose a method of operating a telecommunications network in which redundant protection fibers are pre-configured to form protection cycles used to protect the network against link or node failures.

However, Ellinas et al. do not specifically disclose that the allocation of working paths and spare capacity is jointly optimized.

In the same field of endeavor, Grover et al. clearly show and disclose establishing a bi-criteria (route and capacity) objective function for the selection of a set of restoration routes (figure 2 and paragraphs [0046]-[0049]).

Therefore it would have been obvious to a person of ordinary skill in the art a the time the invention was made to jointly optimize the allocation of working paths and spare capacity as disclosed by Grover et al. in the method of operating telecommunications network of Ellinas et al. in order to provide efficient path protection in a mesh network.

Consider claim 21, and as applied to claim 19 above, Ellinas et al. clearly disclose a method of operating a telecommunications network in which redundant protection fibers are pre-configured to form protection cycles used to protect the network against link or node failures.

However, Ellinas et al. do not specifically disclose pre-selecting candidate cycles by ranking a set of closed paths in the mesh network according to the degree to which each closed path protects spans on and off the closed path, and selecting candidate cycles from the set of closed paths.

In the same field of endeavor, Grover et al. disclose ranking and selecting restoration routes from a larger set of candidates (paragraphs [0046]-[0057], table 3).

Therefore it would have been obvious to a person of ordinary skill in the art a the time the invention was made to select protection cycles from a set of large candidates by ranking said protection cycles as disclosed by Grover et al. in the method for operating a telecommunications network of Ellinas et al. in order to provide efficient path protection in a mesh network.

Consider claim 24, and as applied to claim 19 above, Ellinas et al. disclose a method of operating a telecommunications network in which redundant protection fibers are pre-configured to form protection cycles used to protect the network against link or node failures wherein other conventional methods of determining the directed cycles may also be used (column 12 lines 24-26).

Therefore it would have been obvious, to a person of ordinary skill in the art at the time the invention was made to use other conventional methods including a mixed selection strategy to pre-select protection cycles in the telecommunications network of Ellinas et al., as modified by Grover et al. for the purpose of optimizing the path protection in a mesh network.

7. Claims 8 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ellinas et al. (United States Patent No.: 6,760,302 B1) in view of Grover et al. (United States Patent Application Publication No.: US 2002/0181393 A1), as applied to claims 7 and 21 above, and further in view of Grover et al ("Cycle-Oriented Distributed Preconfiguration: Ring-like Speed with Mesh-like Capacity for Self-Planning Network Restoration", Proceedings of IEEE ICC'98, Atlanta, June 7-11, 1998 pp. 537-543)

One of the applied references has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, one of them constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and

that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). This rejection might also be overcome by showing that the reference is disqualified under 35 U.S.C. 103(c) as prior art in a rejection under 35 U.S.C. 103(a). See MPEP § 706.02(l)(1) and § 706.02(l)(2).

Consider claim 8, and as applied to claim 7 above, Ellinas et al. clearly disclose a telecommunications network in which redundant protection fibers are pre-configured to form protection cycles used to protect the network against link or node failures.

However Ellinas et al. do not specifically disclose pre-selecting candidate cycles by determining a scoring credit for each closed path in the set of closed paths, where the scoring credit of said closed path is calculated to predict the success of the closed path as a pre-configured cycle; and by choosing a select number of closed paths based on the scoring credit to be the pre-selected candidate cycles.

In the same field of endeavor, Grover et al. show and disclose pre-selecting candidate cycles by determining a score that measures the potential of a closed path to form an effective pre-configured cycle and by choosing a select number of closed paths based on the scoring credit to be the pre-selected candidate cycles (page 12 and figure 4).

Therefore it would have been obvious, to a person of ordinary skill in the art at the time the invention was made to pre-select candidate cycles based on a score as

disclosed by Grover et al. in the telecommunications network of Ellinas et al. as modified by Grover et al. in order to provide efficient path protection in a mesh network.

Consider claim 22, and as applied to claim 21 above, Ellinas et al. clearly disclose a method of operating a telecommunications network in which redundant protection fibers are pre-configured to form protection cycles used to protect the network against link or node failures.

However Ellinas et al. do not specifically disclose pre-selecting candidate cycles by determining a scoring credit for each closed path in the set of closed paths, where the scoring credit of said closed path is calculated to predict the success of the closed path as a pre-configured cycle; and by choosing a select number of closed paths based on the scoring credit to be the pre-selected candidate cycles.

In the same field of endeavor, Grover et al. show and disclose pre-selecting candidate cycles by determining a score that measures the potential of a closed path to form an effective pre-configured cycle and by choosing a select number of closed paths based on the scoring credit to be the pre-selected candidate cycles (page 12 and figure 4).

Therefore it would have been obvious, to a person of ordinary skill in the art at the time the invention was made to pre-select candidate cycles based on a score as disclosed by Grover et al. in the telecommunications network of Ellinas et al. as modified by Grover et al. in order to provide efficient path protection in a mesh network.

9. Claims 11-12 and 25-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ellinas et al. (United States Patent No.: 6,760,302 B1) in view of Wang et al. (European Patent Application Publication No.: EP 1 146 682 A2).

Consider claim 11, and as applied to claim 1 above, Ellinas et al. clearly disclose a telecommunications network in which redundant protection fibers are pre-configured to form protection cycles used to protect the network against link or node failures.

However Ellinas et al. do not specifically disclose recording at a node on a pre-configured cycle an identification of protected flow paths that pass through the node and are protected by the pre-configured cycle.

In the same field of endeavor, Wang et al. disclose a system and method for path restoration in a telecommunications network wherein a p-cycle planner pre-calculates protection paths and configures these paths for each node (paragraph [0088]).

Therefore it would have been obvious, to a person of ordinary skill in the art at the time the invention was made to configure each node with the pre-calculated protection paths as disclosed by Wang et al. in the telecommunications network of Ellinas et al. in order to provide efficient path protection in a mesh network.

Consider claim 12, and as applied to claim 11 above, Ellinas et al. as modified by Wang et al. clearly disclose a telecommunications network in which redundant protection fibers are pre-configured to form protection cycles used to protect the network against link or node failures wherein upon the detection of a failure, the node

associated with the failed element switches the data onto a path derived from the cycle protecting that element (column 2 lines 45-65).

Consider claim 25, and as applied to claim 15 above, Ellinas et al. clearly disclose a method of operating a telecommunications network in which redundant protection fibers are pre-configured to form protection cycles used to protect the network against link or node failures.

However Ellinas et al. do not specifically disclose recording at a node on a pre-configured cycle an identification of protected flow paths that pass through the node and are protected by the pre-configured cycle.

In the same field of endeavor, Wang et al. disclose a system and method for path restoration in a telecommunications network wherein a p-cycle planner pre-calculates protection paths and configures these paths for each node (paragraph [0088]).

Therefore it would have been obvious, to a person of ordinary skill in the art at the time the invention was made to configure each node with the pre-calculated protection paths as disclosed by Wang et al. in the method of operating telecommunications network of Ellinas et al. in order to provide efficient path protection in a mesh network.

Consider claim 26, and as applied to claim 25 above, Ellinas et al. as modified by Wang et al. clearly disclose a method of operating a telecommunications network in which redundant protection fibers are pre-configured to form protection cycles used to protect the network against link or node failures wherein upon the detection of a failure,

the node associated with the failed element switches the data onto a path derived from the cycle protecting that element (column 2 lines 45-65).

10. Claims 13-14 and 27-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ellinas et al. (United States Patent No.: 6,760,302 B1) in view of Grover et al. (United States Patent Application Publication No.: US 2002/0181393 A1), as applied to claims 4 and 18 above, and further in view of Wang et al. (European Patent Application Publication No.: EP 1 146 682 A2).

Consider claims 13 and 14, and as applied to claim 4 above, Ellinas et al. as modified by Grover et al. clearly disclose a telecommunications network in which redundant protection fibers are pre-configured to form protection cycles used to protect the network against link or node failures.

However Ellinas et al. as modified by Grover et al. do not specifically disclose that a path segment is part of a path of an express flow through a network region or that the pre-configured cycle is an area boundary flow protecting p-cycle.

In the same field of endeavor, Wang et al. show a path segment that is part of a path of an express flow through a network region and also show an area boundary flow protecting p-cycle (figure 9 and paragraph [0086])

Therefore it would have been obvious, to a person of ordinary skill in the art at the time the invention was made to have path segments as part of a path of an express flow through a network region as well as an area boundary flow protecting p-cycle as

shown by Wang et al. in the telecommunications network of Ellinas et al. as modified by Grover et al. in order to provide efficient path protection in a mesh network.

Consider claims 27 and 28, and as applied to claim 18 above, Ellinas et al., as modified by Grover et al. clearly disclose a method of operating a telecommunications network in which redundant protection fibers are pre-configured to form protection cycles used to protect the network against link or node failures.

However Ellinas et al. as modified by Grover et al. do not specifically disclose that a path segment is part of a path of an express flow through a network region or that the pre-configured cycle is an area boundary flow protecting p-cycle.

In the same field of endeavor, Wang et al. show a path segment that is part of a path of an express flow through a network region and also show an area boundary flow protecting p-cycle (figure 9 and paragraph [0086]).

Therefore it would have been obvious, to a person of ordinary skill in the art at the time the invention was made to have path segments as part of a path of an express flow through a network region as well as an area boundary flow protecting p-cycle as shown by Wang et al. in the method of operating telecommunications network of Ellinas et al. as modified by Grover et al. in order to provide efficient path protection in a mesh network.

Allowable Subject Matter

8. Claims 9 and 23 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims as well as any corrections to the objections made above.

9. The following is a statement of reasons for the indication of allowable subject matter: Regarding claims 9 and 21, the best prior art found during the examination of the present application, Ellinas et al. in view of Grover et al. and further in view of Grover et al. disclose protecting a mesh network using pre-configured protection cycles but fail to disclose calculating a scoring credit by increasing said scoring credit by a value for each flow within said closed path that is protected by said closed path, increasing said scoring credit by a larger value for each flow not on said closed path that is protected by said closed path, weighting the value provided by each flow according to the traffic along said each flow and the length of each flow, and taking the ratio of said scoring credit with the cost of said closed path, as claimed in claims 9 and 23.

Response to Arguments

10. Applicant's arguments filed on 08/16/2007 have been fully considered but they are not persuasive. Applicants' basically argue that the protection cycles of Ellinas are not preconfigured however Ellinas clearly discloses that the protection cycles are pre-determined or pre-assigned and set up prior to the activation of the network.

The Examiner respectfully disagrees with Applicants' interpretation of Ellinas in that the protection cycle 331 is not formed by the combination of other cycles such as 323, 325, etc., in fact protection cycle 331 is a separate cycle that runs along the opposite direction of cycles 323, 325, etc., therefore is neither incomplete (it is by definition a closed loop) nor non-functional in itself. However, it would be obvious to combine several protection cycles if by doing so the network could be better protected against failures, or to pre-configure a protection cycle going in the opposite direction of protection cycle 331 in order to provide one restoration path in case of a failure of a span along the protection cycle which would not include the intermediate node.

While it as true that the protection cycles 323, 325, 327 and 329 in figure 3 do include the intermediate node 311, protection cycle 331 does not include the intermediate node 311 and it does have straddling paths such as the path joining the nodes 309,311 and 313 or the path joining the nodes 309, 311 and 317, thereby providing two restoration paths.

Therefore, in view of the above reasons and having addressed Applicants' arguments, the previous rejection is maintained and made final by the Examiner.

Conclusion

11. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

The prior art made of record and not relied upon is considered pertinent to Applicant's disclosure. Doverspike et al. (United States Patent No.: 6,982,951 B2) disclose a method for selecting a restoration path in a mesh network. Venkatesan (United States Patent No.: 5,999,286) discloses a method and system for restoring a distributed telecommunications network. Chaudhuri (United States Patent No.: 6,324,162 B1) discloses path-based restoration in a mesh network.

12. Any response to this Office Action should be **faxed to** (571) 273-8300 **or mailed to**:

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Hand-delivered responses should be brought to

Customer Service Window
Randolph Building
401 Dulany Street
Alexandria, VA 22314

Any inquiry concerning this communication or earlier communications from the examiner should be directed to German Viana Di Prisco whose telephone number is (571) 270-1781. The examiner can normally be reached on Monday through Friday 7:30-5:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ken Vanderpuye can be reached on (571) 272-3078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

German Viana Di Prisco
October 16, 2007

KENNETH VANDERPUYE
SUPERVISORY PATENT EXAMINER